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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,345	11/12/2003	David Chimitt	TN313	6037

7590 01/10/2006

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EXAMINER

CASIANO, ANGEL L

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,345

Applicant(s)

CHIMITT ET AL

Examiner

Angel L. Casiano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The present Office action is in response to application dated 12 November 2003.

Claims 1-25 are pending. All claims have been examined accordingly.

Drawings

1. The drawings are objected to because black boxes should be labeled as to their function (see Figure 3, "56").
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference **character(s) not mentioned in the description**:
 - a. Figure 6, "146", "148"
 - b. Figure 7, "162", "168"

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of **50 to 150 words**. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for claim 7, this reads, "wherein the redirected IRP is a plurality of IRPs corresponding in number to the number of data extents affected by the IRP". It is unclear

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whether the claim should be read as “wherein the redirected IRP is *from* a plurality of IRPs”.

Based on the Examiner’s interpretation, the following art rejection follows (*infra*).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-2 and 4-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumoto et al. [US 2003/0204683 A1] in view of White et al. [US 6,119,208].

Regarding claim 1, Okumoto et al. teaches a method for processing input/output request packets (see Abstract, “I/O request”; Page 2, [0021], “I/O request is a SCSI packet”) directed to data volumes (see Figure 1, “50”). The method comprises the steps of: initializing a request (see [0010]); directing the request to a “switching device” (volume filter) (see also [0010]); and redirecting the request to an appropriate data extent (see Abstract, “to establish a connection path between the storage controller A’s memory and the storage controller B’s memory”).

However, the reference fails to identify a data volume having a meta-data extent and at least one data extent, as claimed. As for this limitation, White et al. teaches a back up system in which a request is directed to a data storage subsystem having a *data* extent and a *meta-data* extent (see col. 7, lines 4-17). At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures in order to obtain meta-data updates as applied to a device backup operation, as taught by White et al. (see Abstract). Furthermore, one of ordinary skill in the art would have been motivated to combine the cited disclosures in order to obtain a method capable of device recognition processing, by use of the meta-data (as taught by White et al., col. 6, lines 30-34).

As for claim 2, the input output request packet is initiated by an initiator (see Okumoto et al., Abstract, “I/O request is received from a host device with one storage controller A”).

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As for claim 4, Okumoto et al. fails to teach the meta-data extent associated with a plurality of data extents, as claimed. White et al. teaches a back up system in which a request is directed to a data storage subsystem having a *data* extent and a *meta-data* extent (see col. 7, lines 4-17). The meta-data is associated with the data, according to White et al. (see col. 6, lines 23-32). At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures for the reasons stated above.

As for claim 5, Okumoto et al. locates a plurality of data on a plurality of physical disks (see Figure 1, “56”).

As for claim 6, Okumoto et al. teaches the step of redirecting a request to an appropriate data extent (see Abstract, “to establish a connection path between the storage controller A’s memory and the storage controller B’s memory”). However, Okumoto et al. fails to teach the meta-data extent associated with a plurality of data extents, as claimed. As for this limitation, White et al. teaches a back up system in which a request is directed to a data storage subsystem having a *data* extent and a *meta-data* extent (see col. 7, lines 4-17). The meta-data is associated with the data, according to White et al. (see col. 6, lines 23-32). At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures for the reasons stated above.

As for claim 7, Okumoto et al. teaches the IRP corresponding to the number of data extents affected by the request (see Page 1, [0010]; manages a volume (extent) which is a target of the I/O request).

As for claim 8, Okumoto et al. teaches implementing the extents as basic volumes (see Page 1, [0006]; storage system and Page 2, [0018]; storage devices 56 on Figure 1).

Regarding claim 9, Okumoto et al. teaches a method for processing input/output request packets (see Abstract, “I/O request”; Page 2, [0021], “I/O request is a SCSI packet”) directed to data disks (see Figure 1, “50”). The method comprises the steps of: initializing a request (see [0010]); forwarding the request to a “switching device” (volume filter) (see also [0010]); and redirecting (intercepting) the request to an appropriate data extent (see Abstract, “to establish a connection path between the storage controller A’s memory and the storage controller B’s memory”). According to Okumoto et al, the input output request packet is initiated by an initiator (see Abstract, “I/O request is received from a host device with one storage controller A”). An additional request is created and transmitted for data affected by the first request (see Figure 3, “S308”).

However, the reference fails to identify a data volume having a meta-data extent and at least one data extent, as claimed. As for this limitation, White et al. teaches a back up system in which a request is directed to a data storage subsystem having a *data* extent and a *meta-data* extent (see col. 7, lines 4-17). At the time of the invention, one of ordinary skill in the art would

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have been motivated to combine the cited disclosures for the reasons stated in the rejection of claim 1.

As for claim 10, Okumoto et al. fails to teach the meta-data extent associated with a plurality of data extents, as claimed. White et al. teaches a back up system in which a request is directed to a data storage subsystem having a *data* extent and a *meta-data* extent (see col. 7, lines 4-17). The meta-data is associated with the data, according to White et al. (see col. 6, lines 23-32). At the time of the invention, one of ordinary skill in the art would have been motivated to combine the cited disclosures for the reasons stated above.

As for claim 11, Okumoto et al. teaches data located on separate physical disks (see Figure 1, “56”).

As for claim 12, Okumoto et al. teaches the data affected by the first request as located on separate physical disks (see Abstract; “The storage controller A identifies an address of a shared memory managing a volume that is a target of the request. If the address is of a shared memory of **another** storage controller B, the storage controller A issues an instruction to a switching device to establish a connection path between the storage controller A’s memory and the storage controller B’s memory”).

As for claim 13, Okumoto et al. teaches implementing the extents as basic volumes (see Page 1, [0006]; storage system and Page 2, [0018]; storage devices 56 on Figure 1).

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Regarding claim 14, the combination of references teaches the limitations corresponding to the method for providing data volumes (see the rejections of claims 1 and 9). Accordingly, the combination of prior art teaches or suggests all the limitations corresponding to the computer system for implementing the method. Therefore, the present independent claims are rejected under the same rationale.

As for claims 15- 22, these are directed to the computer system for implementing the method previously claimed and rejected. Therefore, these claims are rejected under the same rationale.

Regarding claim 23, the combination of references teaches the limitations corresponding to the method for redirecting input/output requests packets sent from an input/output (I/O) originator (see the rejections of claims 1 and 9). Accordingly, the combination of prior art teaches or suggests all the limitations corresponding to the volume filter for implementing the method. Therefore, the present independent claims are rejected under the same rationale.

As for claims 24 and 25, these are directed to the volume filter for implementing the method previously claimed and rejected. Therefore, these claims are rejected under the same rationale.

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11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okumoto et al. [US 2003/0204683 A1] in view of White et al. [US 6,119,208], in further view of Holavanahalli et al. [US 20030120676 A1].

As for claim 3, the combination of references (see Okumoto et al. in view of White et al.) does not teach the originator of I/O as being a Small Computer System Interface Target Mode Driver (SCSITMD), as claimed. As for this limitation, Holavanahalli et al. teaches an incoming data transfer request which includes a SCSI command with accompanying data to be transferred. A pointer for this location in the kernel memory, where the request is transferred to by a target mode driver 300 (TMD), may be directed to the upper layers using messages The TMD 300 “may be a Fibrechannel HBA (Qlogic ISP 2200) driver”. At the time of the invention, one of ordinary skill in the art would have been motivated to modify the combination of references in order to implement a mode driver, “which receives SCSI requests and sends SCSI responses over a FibreChannel interface” and which “may further include features such as LUN-masking” (emphasis added), as taught by Holavanahalli et al. (see Page 2, [0019]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel L. Casiano whose telephone number is 571-272-4142. The examiner can normally be reached on 9:00-5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alc
03 January 2006



KIM HUYNH
SUPERVISORY PATENT EXAMINER

1/4/06